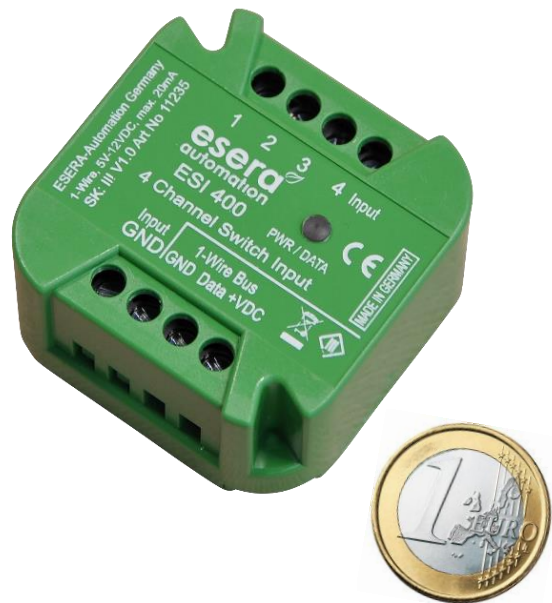


User guide

ESI 400 4-Channel Switch Input (4-way switch input) for 1-Wire Bus

- 4 inputs for querying switching contacts, reed contacts or other digital potential-free switches
- LED indicators for power and status change of the inputs
- Universal power supply 5 -12VDC
- Compact dimensions for installation in switch boxes
- Connection via screw terminals
- Simple software-sided integration
- Standard 1-Wire interface DS2408 Commands
- Housing colour Green (RAL 6020)



Size comparison to a 1 Euro coin

1 Introduction

Before you start the installation of the ESI400 module (in the following only ESI400) and put the device into operation, please read these installation and operating instructions to the end, especially the section of the safety instructions.

ESI stands for **ESERA Switch Input**.

2 Product Description

With the ESI 400 the status of 4 switches, reed contacts or all kinds of potential-free digital sensors can be queried. No external voltage is required for the inputs.

The status LED on the upper side of the module signals the power supply and the status change of the inputs.

When input voltage is applied, the LED flashes briefly as confirmation of the status change.

The ESI 400 is equipped with hardware and software filters to reliably interrogate all types of mechanical switches without flickering. The delay of the inputs is about 40ms.

The inputs are electrically connected to the 1-Wire network. Due to the complex filter technology, even long connection cables between the module and the sensors are possible without disturbing influences on the inputs and the 1-Wire bus. The working voltage of the digital inputs is approx. 5V.

The ESI 400 has a universal supply voltage input with 5V to 12V voltage.

We recommend the use of one of our 1-Wire hub modules.

3 Technical data

Inputs

Number and type: 4 switching inputs with 1-Wire Bus potential, make contact to ground/GND
Input voltage: approx. 5 VDC working voltage with 1mA current switching to ground/GND
No external voltage may be applied to the inputs
Filter: Software filter against switch bounce (40ms delay)
Isolation: Inputs electrically connected to 1-wire Bus
LED displays: Status LED for power and status change of the inputs
The status LED flashes when the status of an input changes.

Interface

Data interface: 1-Wire Bus (5-12V power supply, data with 5V voltage, and ground)
1-Wire interface: DS2408 command set (8-fold I/O)
Operating voltage: 5-12VDC (+/-10 %), max. 20mA
Current consumption: 12V: max. 10mA, all inputs active
Internal fuses: no replaceable fuses available
Isolation voltage: Switching inputs connected to 1-Wire Bus. The inputs have no potential separation.
Connection: Screw terminals (up to 1,5qmm cable cross section)

Note

A power supply between 5 and 12V is required to operate the module.
As power supply we recommend a 1-Wire Hub device.

4 Ambient conditions

Protection system: IP20
Protection class: III
Temperature (operat.): 0 °C bis +50 °C
Air humidity: 10 – 92 % (non condensing)
Dimensions: 43,5 x 43,5 x 25mm (WxHxD)

5 Conformity

EN 50090-2-2
EN 61000-4-2, ESD
EN 61000-4-3, HF
EN 61000-4-4, Burst
EN 61000-4-5, Surge
EN 61000-6-1, Interference immunity
EN 61000-6-3, Interference radiation
RoHS

6 Wiring diagram

The wiring diagram is available in the shop

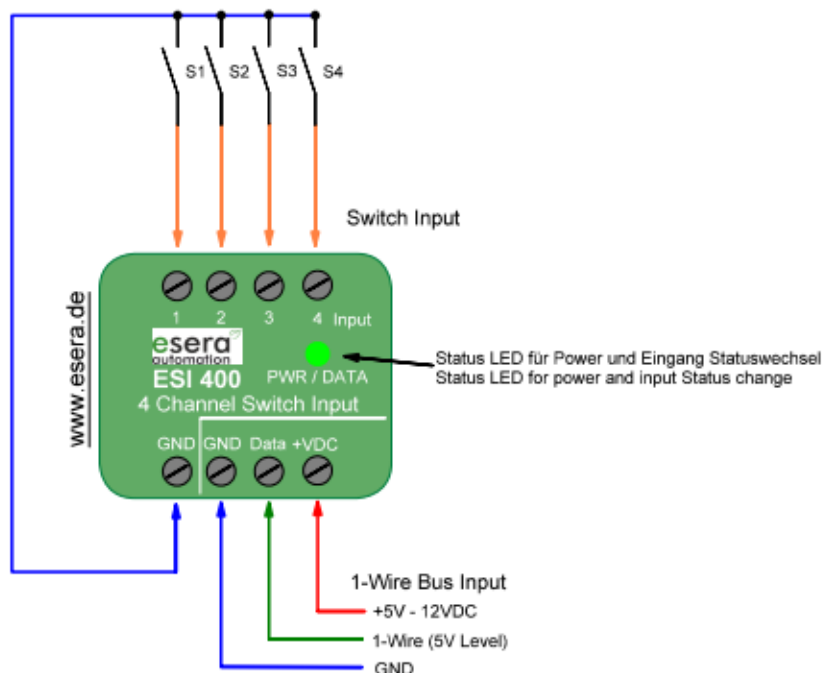
Connection top side:

Inputs

1 = Input 1
2 = Input 2
3 = Input 3
4 = Input 4
GND = GND / ground for switch

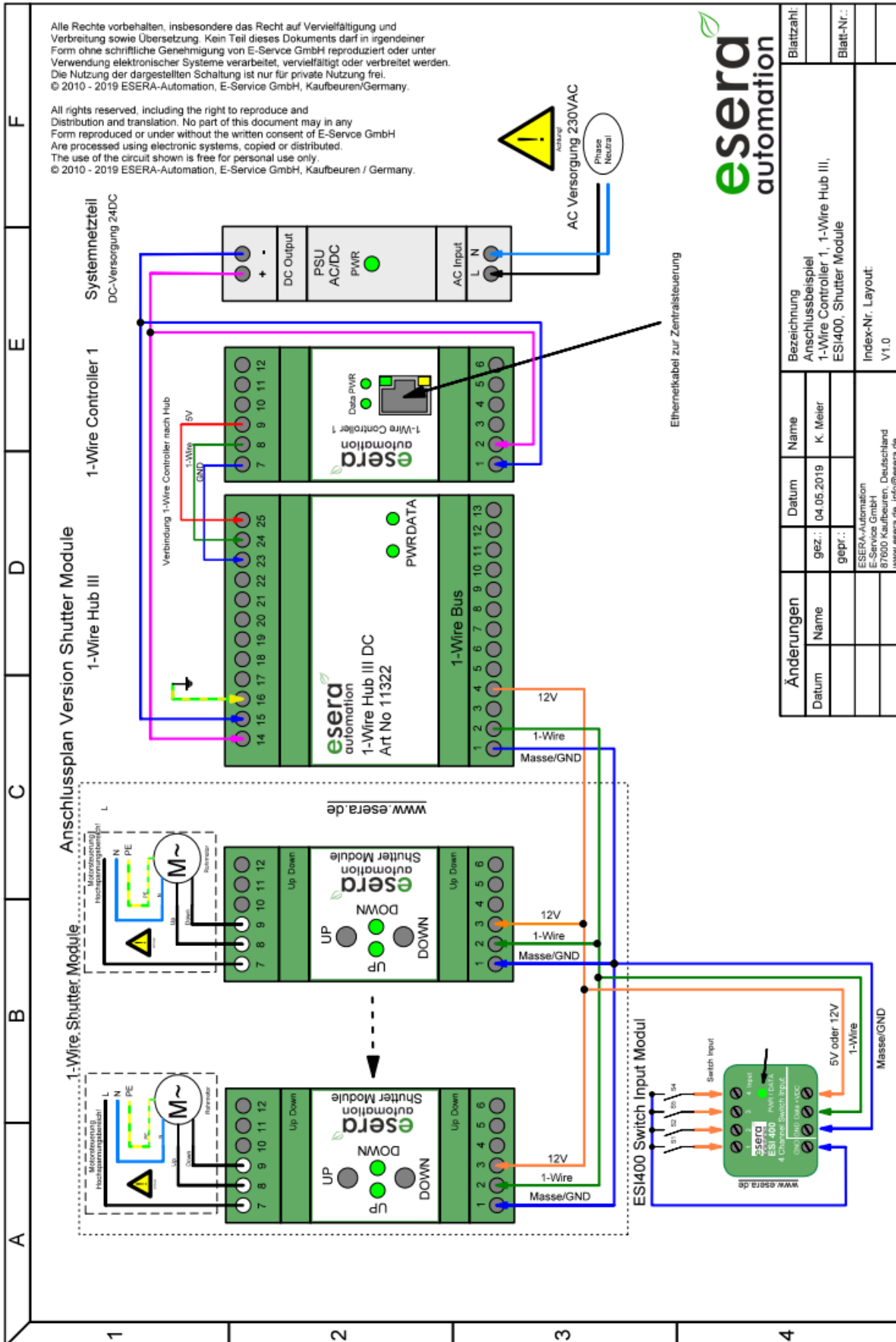
GND = GND / ground for 1-Wire Bus
DATA = 1-Wire Bus data line
+VDC = power supply
5V bis 12VDC

Hinweis: Schließen Sie keine externe Spannungsquelle an
Note: Do not connect an external power source.



7 Connection example

Here is a connection example with 1-Wire controller or 1-Wire gateway, shutter and ESI400..



8 LED display and operating elements

The ESI400 has a green LED for each input channel that lights up when the module is supplied with 5-12V DC. At startup, the software version and revision of the device software are displayed by a view code (first the version and then the revision). After about 10 seconds the ESI400 module is ready for operation.

Display	Designation	Function
LED Green	PWR / DATA	The LED has a double function <ul style="list-style-type: none">lights permanently, display for power supplyflashes when the status of the inputs changes

9 Software / Control

The 1-Wire interface of the ESI400 is read out via 1-Wire command for the 1-Wire device DS2408. The module is a standard module for many systems and software programs, such as 1-Wire controller, 1-Wire gateway, ESERA STATION, PowerDog, SmartOne, FHEM, OWFS, IP-Symcon etc.

9.1 Data output 1-Wire Controller / 1-Wire Gateway / ESERA Station-200

The 1-Wire interface of the ESI400 is controlled by standard commands for the DS2408 read.

For the ESI400 the following data is output for the binary / digital inputs.

The input value is output as decimal value 0-254 and in a second data set with binary display (0 and 1). Each input has a value which is added up.

Input value:

Input 1 = bit 1 (value 1), input 2 = bit 2 (value 2), input 3 = bit 3 (value 4), input 4 = bit 4 (value 8), bits 5 - 8 are static 0.

You can assign Art.No.11235 to the DS2408 device via the config tool. After assigning the part number, you will receive formatted output.

Data output:

1_OWD1_1|2 => Controller No._Module No._Data set | Decimal Value Input

1_OWD1_2|00000010 => Controller No._Module No._Data set | Binary Display Input

For further information on the possibilities and commands, refer to the current documentation 1-Wire Controller /1-Wire Gateway.

10 Operating Conditions

The module may only be operated at the voltages and ambient conditions specified for it. The device can be operated in any position. The device is intended for use in dry and dust-free rooms.

If condensation forms, wait at least 2 hours for the device to acclimatise.

Assemblies and components must not be handled by children!

The modules may only be put into operation under the supervision of a qualified electrician.

In commercial facilities, the accident prevention regulations of the Association of Industrial Employers' Liability Insurance Associations for electrical systems and equipment must be observed.

Do not operate the module in an environment in which flammable gases, vapours or dust are or may be present.

11 Assembly

The installation site must be protected against moisture. The device may only be used in dry indoor and protected outdoor areas. The device is intended for mounting inside a switch cabinet as a stationary device.

12 Disposal note

Do not dispose of the device in household waste! Electronic devices must be disposed of in accordance with the Directive on Waste Electrical and Electronic Equipment on local Dispose of at collection points for old electronic equipment!



13 Safety instructions

When using products that come into contact with electrical voltage, the valid VDE regulations must be observed, especially VDE 0100, VDE 0550/0551, VDE 0700, VDE 0711 and VDE 0860

- All final or wiring work must be carried out with the power turned off.
- Before opening the device, always unplug or make sure that the unit is disconnected from the mains.
- Components, modules or devices may only be put into service if they are mounted in a contact proof housing. During installation they must not have power applied.
- Tools may only be used on devices, components or assemblies when it is certain that the devices are disconnected from the power supply and electrical charges stored in the components inside the device have been discharged.
- Live cables or wires to which the device or an assembly is connected, must always be tested for insulation faults or breaks.
- If an error is detected in the supply line, the device must be immediately taken out of operation until the faulty cable has been replaced.
- When using components or modules it is absolutely necessary to comply with the requirements set out in the accompanying description specifications for electrical quantities.
- If the available description is not clear to the non-commercial end-user what the applicable electrical characteristics for a part or assembly are, how to connect an external circuit, which external components or additional devices can be connected or which values these external components may have, a qualified electrician must be consulted.
- It must be examined generally before the commissioning of a device, whether this device or module is basically suitable for the application in which it is to be used.
- In case of doubt, consultation with experts or the manufacturer of the components used is absolutely necessary.
- For operational and connection errors outside of our control, we assume no liability of any kind for any resulting damage.
- Kits should be returned without their housing when not functional with an exact error description and the accompanying instructions. Without an error description it is not possible to repair. For time-consuming assembly or disassembly of cases charges will be invoiced.
- During installation and handling of components which later have mains potential on their parts, the relevant VDE regulations must be observed.
- Devices that are to be operated at a voltage greater than 35 VDC / 12mA, may only be connected by a qualified electrician and put into operation.
- Commissioning may only be realized if the circuit is built into a contact proof housing.
- If measurements with an open housing are unavoidable, for safety reasons an isolating transformer must be installed upstream or a suitable power supply can be used.
- After installing the required tests according to DGUV / regulation 3 (German statutory accident insurance, https://en.wikipedia.org/wiki/German_Statutory_Accident_Insurance) must be carried out.

14 Warranty

ESERA GmbH guarantees that the goods sold at the time of transfer of risk to be free from material and workmanship defects and have the contractually assured characteristics. The statutory warranty period of two years begins from date of invoice. The warranty does not extend to the normal operational wear and normal wear and tear. Customer claims for damages, for example, for non-performance, fault in contracting, breach of secondary contractual obligations, consequential damages, damages resulting from unauthorized usage and other legal grounds are excluded. Excepting to this, ESERA GmbH accepts liability for the absence of a guaranteed quality resulting from intent or gross negligence. Claims made under the Product Liability Act are not affected.

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